

*Subcommittee of the Water Resources Coordinating Council  
To Focus on Recommendations required by HF756  
(WRCC Established under Iowa Code Chapter 466B)*

**RECOMMENDATION SUMMARIES:**

**Grouped by Impact focus of Regulatory, Planning,  
Education, or Funding (Four Major Ways to Mitigate Flood Risk):  
Includes Suggested Revisions from 10/20/09 Subcommittee Meeting**

**Move to Preamble**

**#15:** The Water Resources Coordinating Council should move more quickly from information sharing to actual interagency program coordination.

**#26:** Highlights from prior flood plain-related recommendations brought forward by water resources task forces in 2001, 2003 and 2007 should be reconsidered (See EXHIBIT 3, Page 15 of draft recommendations, incorporated by reference into draft recommendation #26)

**#28:** Manage existing water resources programs to include flood risk management

**#34:** Storm frequency needs to be analyzed for accuracy of predictions (i.e. basis for a “ten-year storm”)

**IDOT RECOMMENDATION:** NOAA is conducting a research project, also sponsored by FHWA, titled, “Update of Precipitation Frequency Estimates for the Midwest Region”. Therefore, recommendation #34 may be deleted with a reference made in the preamble.

**#38:** Recognize that voters may approve a 2010 referendum question amending Iowa’s Constitution to provide that if the state raises the sales tax in the future, 3/8ths of the increase will go to a new protected account for natural resources projects, including soil and water conservation; a one-penny increase would generate about \$150 million annually which could serve as a funding source.

**Regulatory**

**REVISED #1 (Ehm and Cappuccio, DNR):** The 0.2% flood should be the regulated flood plain instead of the 1% flood. This change should be phased in as the 0.2% flood plains are identified on Flood Insurance Rate Maps published by FEMA.

**ORIGINAL #1:** The 0.2% flood should be the regulated flood plain instead of the 1% flood. This change should be phased in as the 0.2% flood plains and floodways are identified on maps approved by FEMA.

**REVISED #2 & #3 (Marler et al. IDOT):** The State should prohibit reconstruction of substantially damaged structures in the floodway and limit reconstruction or new construction in the flood plain to

no more than 3 vertical feet of fill above the natural ground line. Means other than fill to elevate structures may be allowed. These provisions do not apply to features and structures necessary for the construction or maintenance of utility facilities, transportation, water control facilities, or public infrastructure that are otherwise subject to permitting requirements by state and federal regulations.

\*\*\*\* DOT Caveats \*\*\*\*

- Our intention in this proposed revision is to combine the Flood Plain group's recommendation #2 & #3 into a single recommendation.
- Deleted the 1<sup>st</sup> sentence from the original working group's recommendation #2 because it is redundant with existing regulations.
- The proposed recommendation excludes certain activities from being prohibited within the floodway and flood plain.
- The recommendation does not exclude those same activities from remaining regulated as they currently are by FEMA or DNR.

**ORIGINAL #2:** The state should prohibit development (structures, fill and other restrictions to flood flows) in the floodway of the regulated flood plain. Reconstruction of substantially damaged structures already located in the floodway should also be prohibited.

**ORIGINAL #3:** The use of fill to elevate new or reconstructed structures (excluding levees) in the flood plain should be restricted to no more than three vertical feet. Other means of elevating structures should be allowed. Structures in the regulated flood plain but outside the floodway should be constructed in a manner that will reduce the damage caused by the 0.2% flood. These restrictions should be phased in as the 0.2% flood plains are identified on maps approved by FEMA.

**ORIGINAL #4 (Leave as is per Ehm and Cappuccio, DNR):** Areas on the landward side of a flood control levee recognized by the Federal Emergency Management Agency as protecting against the 0.2% flood should not be considered as in the 0.2% floodplain and should not be subject to the regulations for the 0.2% flood plain.

**#12:** New Class I Critical Facilities should be located outside the 0.2% flood plain whenever practical. New Class I Critical Facilities should also be designed and located as to maintain their function during a 0.2% flood whenever practical.

**REVISED #40 (Montana):** Explore opportunities for enhancing and implementing minimum statewide stormwater laws and regulations, including, but not limited to, limiting water runoff, reducing future flood damage, focusing on stream channelization, and improving water quality.

**REVISED #41 (Montana):** Amend National Pollutant Discharge Elimination System (NPDES) permits to require soil quality restoration after one or more acre of land is disturbed, including, but not limited, to mitigating soil compaction and replacing top soil after construction is complete.

**DELETE #42 (Montana):** Increase state government's utilization of the ISMM.

**ORIGINAL: #40 & #41 & #42:** Utilize a Phase-In Approach to Implement Statewide Stormwater Standards Consistent with the Iowa Stormwater Management Manual (ISMM). Require new and amend renewal National Pollutant Discharge Elimination System (NPDES) MS4 permits to include Stormwater Best Management Practices as outlined in the ISMM. Increase state government's utilization of the ISMM.

### **Planning and Projects**

**REVISED #5, #16 and #18 (Adkins, Sims, Skalak):** Focus public investments in levees on built-up areas where there are no other practicable alternatives for mitigating flood damage risks. Elsewhere, reconnect streams and rivers to their flood plains through levee modifications or removal, coupled with compensatory agreements with farm owners that provide for continued farming with higher assumed flood loss risks. Provide \$10 Million annually for rural levee modification and farmland compensatory agreements.

**ORIGINAL #5 & #16:** Flood control levees should primarily be used to protect areas with existing development if there are no practical alternatives for mitigating damage from floods. Reconnect streams and rivers to their flood plains and floodways. This practice involves the modifications of levees, roads, channels and diversions. The State of Iowa should consider levee district buyouts when they are needed in order to accomplish stream-floodplain reconnections. (See funding recommendation #18)

**ORIGINAL #18:** Provide a means of indemnification that would allow levees to be modified or removed and floodplains to be farmed with the agreement that if there is flooding the land will be used for back up and holding water.

**#14 :** Provide interagency assessment and project planning to support and inform infrastructure / easement / land purchase investment decisions in floodplain areas.

**#19:** Integrate multi-purpose wetlands into watersheds with drainage districts or larger drainage systems. Systems would be retrofitted to enable nutrient trapping and treatment; more water infiltration and evapotranspiration; greater retention of run-off; and habitat to support biodiversity. Maintain a holistic view of watershed management and targeting funds and programs within those watersheds.

**REVISED #20, #30 and #48 (Marler et al. IDOT):** Conduct a hydrological tiling study to determine the impact tile drainage has on infiltration, surface runoff, and flooding and to evaluate the feasibility of seasonal retention of water in tile drained fields as a drainage management strategy. The impact of potholes, wetlands and water retention structures should be considered in the study.

**ORIGINAL #20:** Technically support Drainage Water Management to allow for the seasonal retention of water in tile drained fields. This practice is most easily adopted in very flat landscapes.

**ORIGINAL #30 and #48:** Conduct a hydrological tiling study to determine the impact tile drainage has on infiltration, surface runoff, and flooding. Consider impacts of potholes, wetlands and water retention structures. There is a general lack of understanding of how tile drainage functions. Some think more tile drainage means more flooding; while others think it is unlikely that tile flow alone could cause out of control bank flows and might even reduce peak flows by helping the landscape infiltrate more rainfall and shed less runoff.

**REVISED #21, #23, #27 (DeWitt, Neal, Adkins):** Fund a comprehensive proof-of-concept pilot HUC8 or larger, rural-urban watershed demonstration with the primary goal of integrating a diversity of partners, funding, practices and evaluation to maximize rainfall infiltration throughout the watershed under non-saturated soil conditions.

**ORIGINAL #21:** Develop, implement, monitor and document a watershed project that has as a primary goal high infiltration of rainfall under non-saturated soil moisture conditions in both rural and urban areas.

**ORIGINAL #23:** Conduct a cooperative pilot project for the evaluation of strategies for reducing severe scour erosion and sand deposition by floodwaters under various soils/geology conditions. Strategies would include but are not limited to levee and road modifications, reforestation and grassland seeding. This project should be part of an overall watershed plan at the HUC 8 scale or larger.

**ORIGINAL #27:** Fund a pilot/demonstration project involving a “hybrid” of both implementation and research, implementing best practices as well as hydrologic studies at the Iowa Flood Center (U of I) and management for flood reduction

- Includes a “distributed storage” system including upland retention structures
- Site selected based on criteria including isolated community (at top of watershed) impacted in 2008, impaired waters (for funding), willingness of watershed stakeholders, geographic MLRA, flexibility to expand to larger scale, visible and quantifiable results, take advantage of other ongoing research (e.g. Iowa/Cedar Basin), input from stakeholder groups including agriculture community, livestock groups, cities, state agencies, universities, water interests (water, waste water and rural water), ability to collect soil moisture data, an area with a gaging station or recommend installation of a gage in the area
- Multi-jurisdictional effort and funding, leverage one program with another (multi-programmatic)
- Funding sources ranging from individual to all levels of government, private sector including commodity groups

### **Research and Education**

**#10:** Support the formation of a local chapter of the Association of State Flood Plain Managers in Iowa that would provide a vehicle for local managers and planners to discuss flood plain issues and learn from each other.

**REVISED #11 & #29, 25, 31, 32 (Oswald, Neal, DeWitt):** The Iowa State University Extension, working in conjunction with flood plain and hydrology experts, should be tasked with and appropriated funds for educating the general public about flood plains, flood risks and basic flood plain management principles.

- develop materials and programs in consultation with flood plain experts
- expand use of existing integrated farm/land resource management tools, specifically I-Farm, to assist planners, landowners, and farmers to plan and create infiltration systems to accommodate one inch rainfalls and support conservation and business planning.
- Make extensive use of existing tools and knowledge focused on soil health, specifically, the NRCS Soil Conditioning Index as a common metric for improved agronomic and conservation practices.

**ORIGINAL #11 & #29:** The Iowa State University Extension Service should be tasked with and appropriated funds for educating the general public about flood plains, flood risks and basic flood plain management principles. The ISU Extension Service already has a network of educators across Iowa and should develop materials and programs in consultation with flood plain experts.

**ORIGINAL #25:** I-Farm is a farm resource management and business planning tool developed at ISU. I-Farm could help farmers plan and create infiltration systems to accommodate one inch rainfalls. I-Farm should be used by ISU Extension and other agencies to support conservation and business planning.

**ORIGINAL #31:** Develop a soil moisture monitoring network through the Iowa Water Center and Leopold Center, both at ISU

**ORIGINAL #32:** Make extensive use of the NRCS Soil Conditioning Index tool. Conservation and agronomic practices that are matched to the need of the land and objective of the landowner will improve sustainability over the long term, potentially increasing profitability, reducing impacts of flooding, and improving water quality. One example of a best practice is use of perennial ground covers. An improved Soil Conditioning Index score is an indication of good agronomic and conservation practices.

**PROJECTED COSTS (DeWitt, Neal):**

**#11 & #29:** \$370K (\$100K year 1; 85-90K/yr for years 2-4).

1 FTE – 80 K Salary & Benefits, 10K for current expenses, materials prep, & transportation; 10K for trainings and meetings (YR.1); 85-90 for salary, benefits and expenses for following years

**#25:** \$1,000,000 (250K/yr for 4 years)

Redesign of I-FARM user interface to increase user accessibility; Re-code the algorithms in a newer, more flexible and maintainable programming language; and create a set of optimization algorithms and results visualization methods for users that return an overall “optimize” solution among alternatives and their environmental impacts, profitability, etc.

**#31:** \$170,000 (85K/yr for 2 years, doesn't include indirects)

Expand Iowa Daily Erosion Project (WEPP model) for a statewide soil moisture monitoring network by synching with LIDAR and real time satellite data. Yr.1: Supplies \$5,000; 30K (salary for 6 months) to rewrite/optimize IDEP scripts and automate input of new management

scenarios; \$90K (salary for 1 year) for coding IDEP point sampling (6 months), hillslope delineation (4 months) , and rotation database (2 months); and 45K to create and code methodology to determine residue cover (6 months).

**#24:** Include floodplain or alluvial soils information as part of the disclosure form used as part of real estate transactions.

**#31:** Develop a soil moisture monitoring network through the Iowa Water Center and Leopold Center, both at ISU

**#33:** A media campaign is needed to let Iowans know we are all affected by, and have an impact on, watershed issues. Landowner/tenant issues should be considered as part of this campaign.

**#35:** Reassess criteria for conservation practices because of changing climate.

- NRCS Field Office Technical Guide (conservation criteria)
- NRCS Engineering Field Manual (design criteria)

**REVISED #46 (Montana):** Amend the Iowa Code which Authorizes Soil and Water Conservation Districts to Fund Local Watershed Projects; include Integrating Levee, Drainage and SWCD Watershed Districts Watershed Project Efforts.

**ORIGINAL #46:** Allow Soil and Water Conservation Districts to create watershed districts with levy authority to develop regional water management plans integrated with local governments and crossing county boundaries.

**REVISED #47 (Montana):** Develop and implement a statewide water quality education and outreach marketing campaign, as outlined in HF2400. Estimated annual funding is \$1,000,000.

**ORIGINAL #47:** Support and enhance existing educational efforts such as the Iowa Stormwater Partnership, Iowa Stormwater Education Program, Urban Conservationists, RainScaping Iowa Initiative, and the Council of Governments to focus on stormwater best management practices as outlined in the Iowa Stormwater Manual. Efforts should reach all parties, including, but not limited to, State, county and city officials, engineers, planners, realtors, and developers, and consider the various needs and circumstances of residential and commercial and industrial properties. These programs' efforts should be supported and enhanced to reach a larger audience and provide more technical assistance as stormwater standards are phased-in and stormwater best management practices are implemented (Recommendation 1).

## **Funding**

### **POSSIBLE REVENUE GENERATORS:**

**REVISED #39 (Judkins and Kinman):** Approximately \$16 million in sales tax is currently collected by public water suppliers for drinking water. A percentage could be allocated for watershed protection projects, a percentage to an infrastructure replacement revolving loan fund, with approximately 10% going to the Department of Natural Resources for management of the Safe Drinking Water Act.

Additional sources could include a new sales tax on bottled water sales, and/or collecting a redemption fee on bottled water similar to pop bottles.

**ORIGINAL #39:** Dedicate the sales tax currently collected by public water supplies for drinking water, add sales tax on bottled water sales, and/or collect a redemption fee on bottled water similar to pop bottles, could serve as additional funding sources.

**#44:** Give cities authority to establish a connection fee for stormwater drainage utility systems. (SF458)

**SUGGESTED STATE APPROPRIATIONS:**

**#7:** The state should create a grant program to help entities bear the cost of certifying existing flood control levees.

**COST ESTIMATE (Skalak, Army Corps of Engineers):** Rough cost estimate for the evaluation and certification of applicable levee systems (e.g. those levee systems known to provide or potentially providing protection from the 1% or greater flood event). Our District's experience to date in accomplishing the rigorous evaluation work necessary to support certification and, ultimately, levee accreditation suggests a reasonable average cost per levee system would be \$200,000 (+/-). We estimate there are approximately 30 levee systems in the State still needing/wanting to be evaluated and certified for purposes of accreditation and for which there are no known other funding source(s) to accomplish this work. Based on these numbers the total estimated cost would be \$6,000,000 (\$200,000 X 30).

**#8:** The state should create a grant program to assist entities with improving existing levees as one way to meet the new 0.2% flood regulations.

**REVISED #9 and #13 (Adkins, Sims, Skalak):** Provide \$3 Million annually for local and regional watershed-based floodplain management planning. Provide \$50 Million annually to leverage local and federal funds for flood damage risk mitigation projects, with a priority given to projects that employ non-structural strategies.

**ORIGINAL #9 and #13:** The state should create a grant program to support local planning entities for developing local flood plain management plans. Preference should be given to planning activities that benefit a region or watershed. The goal of these flood plain management plans should be to reduce the flood exposure to people and property and thereby reduce flood damages, with a priority on flood damage reduction projects.

**#17:** Provide authority for the purchase of easements in upland areas that are part of planned flood risk reduction projects. The easements would stipulate the use of water infiltration practices that are appropriate for each situation. Practices might include contour farming, strips of perennial vegetation, ponds, wetlands, no-till, and other measures.

**REVISED #22 (Judkins):** Enhance federal funding for programs including the Wetland Reserve Program (WRP), Emergency Watershed Protection (EWP), Farm and Ranch Lands Protection Program (FRPP), and Conservation Reserve Program (CRP) programs with state matching funds.

**ORIGINAL #22:** Enhance WRP, EWP, FRPP, and CRP programs with state matching funds.

**REVISED #36 (Oswald, Adkins, Gipp):** Recommend increased funding for staff at research as well as project implementation levels in the public and/or private sector. An effective watershed level planning effort that leads to an effective locally-led implementation project typically ranges from 10,000 – 30,000 acres in size. Staff is typically IDALS/DSC or ISU-Extension Service technical positions that are dedicated to that project. The USDA/NRCS also provides technical and/or financial assistance. Current staffing levels are not adequate to provide the technical expertise needed. Funding needs at the state level would require an additional 50 dedicated technical positions estimated at \$4.2 million annually.

**ORIGINAL #36:** Recommend increased funding for staff at research and field levels for public and/or private sector. Watershed level planning requires effort at the research level to actual watershed level down to the field level working with individual farmers. Current staffing levels would not be sufficient to provide the technical expertise needed.

**#37:** Recommend multi-year state funding for the Iowa Flood Center

**Funding Projection:** Continue at \$1,300,000 per HF822 (2009)

**REVISED #43 (Montana):** Support and enhance existing stormwater funds, including the State Revolving Fund and the Watershed Improvement Review Board.

**ORIGINAL #43:** Support and enhance existing stormwater funds; establish a new fund similar to the Property Assessed Clean Energy (PACE) Program

### **Delete**

**DELETE #6 (Subcommittee Decision 10/20/09):** The governor should support and endorse Alternative H in the "Upper Mississippi River Comprehensive Plan - Final Report June 2008 (Revised Aug 14, 2008)" prepared by the Army Corps of Engineers. This alternative would improve the existing levee system to provide protection from the 0.2% flood along the Mississippi River (not the tributaries). [Note: The Army Corps of Engineers employees participating in the work group did not endorse any alternative.]

**DELETE #42 (Montana):** Increase state government's utilization of the ISMM.

**DELETE #45 (Montana):** Give cities and counties authority to establish a Credit Program based on the stormwater best management practice implemented to offset the amount of impervious surfaces installed.